

### **REMARKS**

This paper responds to the Office Action mailed on March 27, 2006.

Claim 4 is amended, no claims are canceled, and no claims are added; as a result, claims 1-6 and 8-50 are now pending in this application.

Applicant maintains its right to swear behind any documents relied upon for a rejection under 35 U.S.C. 102(a), 102(e), 103/102(a), and 103/102(e). Statements distinguishing the claimed subject matter over the cited references are not to be interpreted as admissions that the documents are prior art.

#### **Information Disclosure Statement**

Applicant submitted an Information Disclosure Statement and a 1449 Form. The Examiner indicates that the documents are classified in unrelated classes and appear to be unrelated. The Applicant has not reviewed these documents and defers to the expertise of the Examiner as it appears that he has reviewed the documents to some extent. However, Applicant respectfully requests that initialed copies of the 1449 Forms be returned to Applicant's Representatives to indicate that the cited references have been considered by the Examiner.

#### **§112 Rejection of the Claims**

Claim 4 was rejected under 35 U.S.C. § 112, second paragraph, for indefiniteness. Applicant respectfully disagrees with the Examiner's statement on page 7 of the outstanding Office Action, but to facilitate the prosecution of this application, has amended claim 4 to be in independent form and remove any indefiniteness with regard to including a vapor process. No new matter has been added. In view of the above noted claim amendment, Applicant respectfully requests that this rejection be withdrawn.

#### **§102 Rejection of the Claims**

Claims 46-50 were rejected under 35 U.S.C. § 102(e) for anticipation by Kang et al. (U.S. Publication 2004/0175884). Applicant respectfully traverses this rejection.

The cited reference of Kang has been discussed previously and discloses forming capacitors having a larger diameter at a bottom portion of the capacitor than a diameter at a middle portion of the capacitor. Thus, since the bottom (See item 180a of figures 3E-H and 4), has a larger diameter by “forming a recessed portion at side surface of the second contact hole” (see paragraphs 19 and 41) than the middle (See item 200), then the walls of the capacitor are not vertical. This is shown in figures 3D-3F, and discussed at paragraphs 39 to 44. Further, the cited reference shows in all figures that the side walls 280 of the capacitor are outwardly sloping above the region 180a, and thus even ignoring the wider area at the bottom still does not describe, suggest, show, indicate or otherwise contain any disclosure of vertical sidewalls.

Applicant respectfully disagrees with the statement on page 7 of the outstanding Office Action, which states that Applicant, in the present application, has not narrowly defined the term substantially vertical and thus the clearly diverging and non vertical slopes of the cited reference are equivalent. Applicant submits that the embodiments shown in figure 1B and in figure 3B would indicate to one of ordinary skill in the art that the sloped etched wall of the recess 144 have slightly different diameters 146 and 148, which are made more vertical by the straightening etch shown in figure 1C and discussed in the specification on pages 7 and 8, and thus be able to correctly differentiate between Applicant’s structure and Kang’s. Applicant respectfully submits that one of ordinary skill would understand the meaning of substantially vertical in Applicant’s disclosure and illustrations, as compared to Kang where there is no disclosure or suggestion regarding the verticality of the capacitor walls, and further shows the side walls of the capacitor having a non-vertical slope including horizontal portions (i.e., the region “A” as shown in figure 3H and discussed at least at paragraph 46). Applicant respectfully submits that one of ordinary skill would understand that there is a difference between a reference having horizontal portions to a contact versus the present application where a slightly sloped sidewall is unambiguously contrasted to a vertical sidewall. Thus there is adequate description in the present application as to the meaning of the term substantially vertical, including figures and measurements such as 146 and 148 of figure 1B.

In view of the above discussion, Applicant once again respectfully submits that the cited reference does not disclose a feature of “... *the conductive structure has substantially vertical sidewalls* ...”, as recited in independent claim 46. The present application discusses the near

vertical or substantially vertical sidewalls at least at page 1, line 25; page 2, lines 6-11, page 5, line 31; page 7, line 30; page 8, lines 2-7; page 26, line 15 and page 31, line 2 and makes the difference between sloped and substantially vertical clear.

The dependent claims 47-50 directly depend from claim 46, and are believed to be patentably distinct over the cited reference of Kang at least as depending upon a base claim shown above to be patentable. In view of the above discussed claim amendment, Applicant requests that this rejection be reconsidered and withdrawn.

*§103 Rejection of the Claims*

Claim 50 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Kang et al. (U.S. Publication 2004/0175884). Applicant respectfully traverses this rejection.

This rejection is again based upon the assertion that Kang discloses substantially vertical sidewalls, with which Applicant respectfully disagrees. Since the present application does explain the term substantially vertical with respect to figures 1B and 1C and discussed at least at pages 7 to 8, and since the cited reference shows the side walls of the capacitor having a decidedly non-vertical slope and including a number of horizontal portions (See the region “A” in figure 3H and the discussion at least at paragraph 46), then the cited reference, whether taken alone or in any combination with other well known art, does not describe or suggest the feature of a “... *conductive structure has substantially vertical sidewalls* ...”, as recited in independent claim 46, from which claim 50 directly depends. Claim 50 is in patentable condition at least as depending from a base claim shown to be patentable over the suggested references. Applicant respectfully requests that this rejection be reconsidered and withdrawn.

Claims 40-45 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Kang et al. in view of Jost et al. (U.S. 5,966,611). Applicant respectfully traverses this rejection.

The cited reference of Kang has been discussed above. The Jost reference is used in the outstanding Office Action to show that organic sacrificial layers are known.

Applicant respectfully submits that the cited Jost reference does nothing to cure the above noted failure of the Kang reference to suggest vertical sidewalls, and thus the suggested combination of reference can neither describe nor suggest at least the claimed feature of “...a

conductive structure embedded therein having substantially vertical sidewalls ...”, as recited in claim 40, from which the other claims directly depend. Applicant submits that the specification does clearly describe the meaning of substantially vertical to one of ordinary skill in the art, and that the cited reference of Kang is an inappropriate reference since there is no discussion or suggestion of vertical sidewalls.

The dependent claims are felt to be patentable at least as depending upon a base claim shown to be patentable over the suggested combination of references. Applicant respectfully requests that this rejection be reconsidered and withdrawn.

Claims 1-6 and 8-39 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Kang et al. in view of Jost et al. and O’Brien (U.S. 5,817,182). Applicant respectfully traverses this rejection.

The cited references of Kang and Jost have been discussed above. The O’Brien reference is used in the outstanding Office Action to show that it is known to rinse after etching.

Applicant respectfully submits that the suggested combination of references neither describe nor suggest at least the claimed features of “...*forming a conductive structure in the first recess having substantially vertical sidewalls ...*”, as recited in claims 1 and 9, for reasons similar to those noted above with reference to the prior rejections, specifically that the suggested combination of references fails to suggest the conductive structure having vertical walls.

Applicant similarly submits that the combination of references neither describe nor suggest the claimed features of “...*wherein second etching includes a second etch rate that is slower than the first etch rate ...*”, as recited in claims 22 and 29, from which claims 23-28 and 30-39 depend. There is no suggestion in the cited references that the second etch should be slower than the first etch rate, and thus there exists no motivation to make the suggested changes.

The dependent claims are held to be in patentable condition at least as depending from base claims shown above to be patentable over the suggested combination of references. In view of the above noted claim amendments and discussion, Applicant respectfully requests that this rejection be reconsidered and withdrawn.

**CONCLUSION**

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney David Suhl at (508) 865-8211, or the undersigned attorney at (612) 349-9587 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

KEVIN TOREK ET AL.

By their Representatives,

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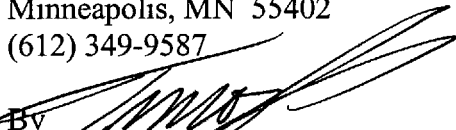
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Date

*30 May '06*  
*Tuesday after Memorial Day*

By



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**CERTIFICATE UNDER 37 CFR 1.8:** The undersigned hereby certifies that this correspondence is being filed using the USPTO's electronic filing system EFS-Web, and is addressed to: Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 30 day of April, 2006.

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Signature